ORACLE

Oracle Autonomous Database Update

Global Leaders 2020

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VP of Product Management

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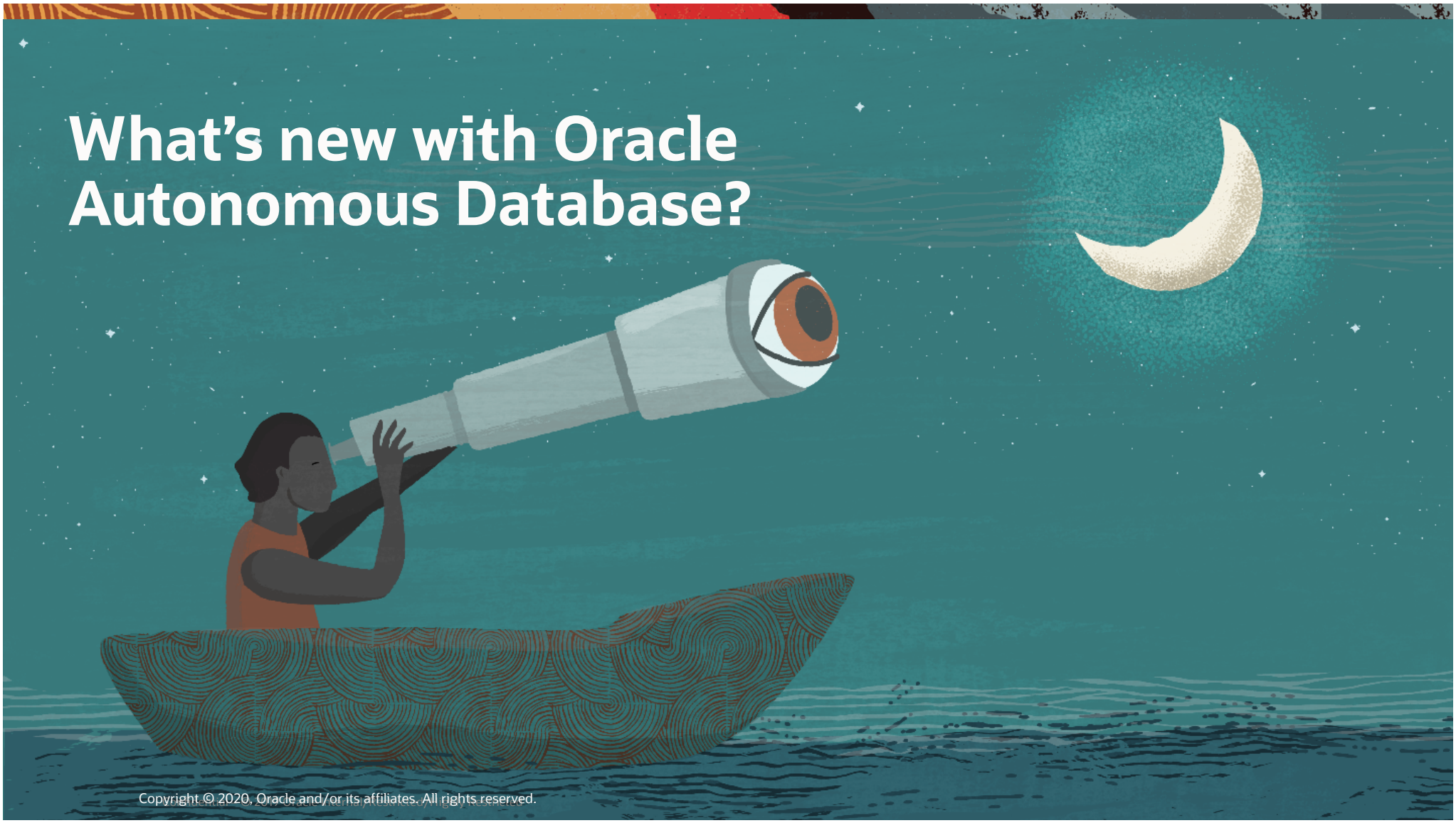
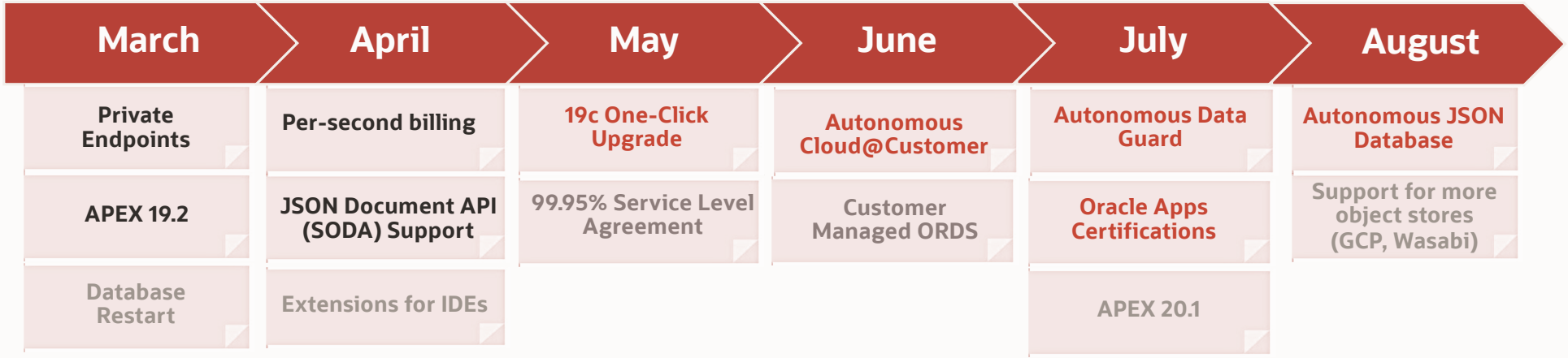
Distinguished Product Manager

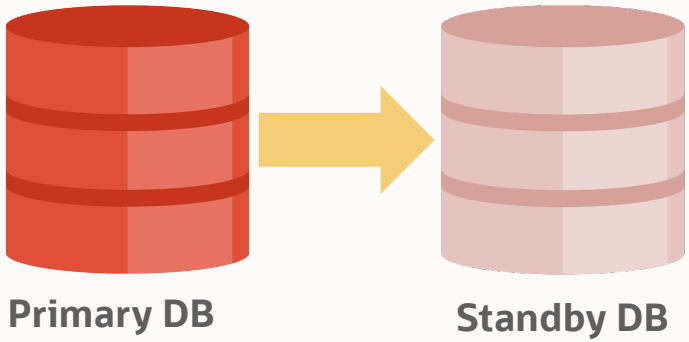
What's new with Oracle Autonomous Database?



Autonomous Database: Recent New Features



Autonomous Data Guard



- Fully-managed standby database
- Simple and transparent
  - Completely transparent to customer applications
  - Automatic failover for zero-data loss scenarios
  - User-initiated failover for other scenarios
- Initially in same region as primary database
  - In different availability domains when possible
  - Cross-region standby coming soon
- 99.995% availability

Autonomous JSON Database

Autonomous JSON Database

Provides the same benefits as NoSQL document stores

- New service for **JSON-centric** development
- Flexible and fast at scale
- **Native** JSON storage
- Simple **document APIs**
  - Language drivers, command-line, and REST
  - SQL not required

Autonomous JSON Database

More than a simple document store

- ✓ Autonomous
- ✓ Full SQL support
- ✓ ACID Transactions
- ✓ Advanced security
- ✓ APEX low-code development
- ✓ One-click instant expansion to ATP

CRUD Operations

Introducing **SODA** (Simple Oracle Document Access) and **SQLcl**

SODA APIs

- NoSQL-style APIs for
  - Java, JavaScript/Node.js, Python, REST, PL/SQL, C…
- Used to manage JSON data
  - create collections
  - store documents in collections
  - retrieve documents
  - query documents
  - ***No need to know SQL!***

SQLcl

- Modern SQL Developer Command Line interface for Oracle database
- Provides
  - inline editing, statement completion, command recall…
  - **SODA commands**

MongoDB Compared to Oracle SODA

```
MongoClient mongoClient = new MongoClient();

DB database = mongoClient.getDB("procurement");

DBCollection coll =
database.getCollection("purchase_orders");


BasicDBObject po = new
BasicDBObject(JSON.parse(json1));

coll.insert(po);



DBObject query = new BasicDBObject("Requestor",
"Alexis Bull");


DBCursor cursor = coll.find(query);

DBObject doc = cursor.one();
```

```
OracleDatabase db = new
OracleRDBMSClient().getDatabase(jdbcConnection);

OracleCollection coll =
db.admin().createCollection("purchase_orders");



OracleDocument po = db.createDocumentFromString(json1));

coll.insert(po);



OracleDocument qbe =
db.createDocumentFromString("""{"Requestor":"Alexis
Bull"}""");

OracleCursor cursor = coll.find().filter(qbe).getCursor();

OracleDocument doc = cursor.next();
```

Autonomous JSON Database

Lower Cost than MongoDB

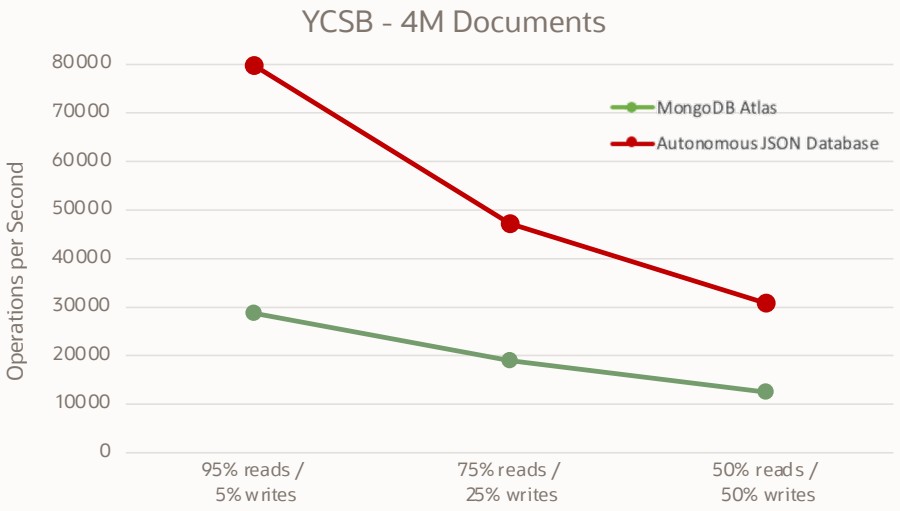
- Autonomous JSON Database Pricing:
- $0.2688 OCPU per hour ($240/month)
- $0.1591 TB per hour ($118.40/month)

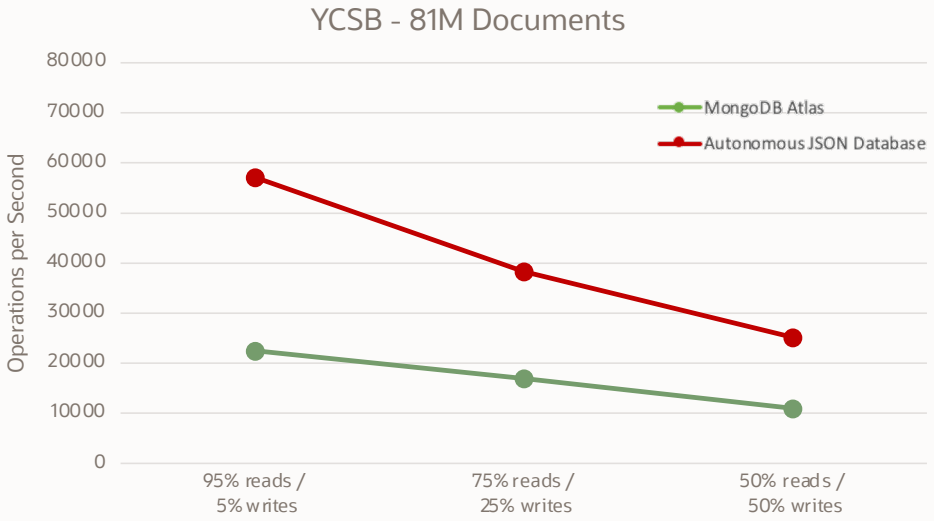
	Autonomous JSON DB	MongoDB Atlas
Configuration	8 OCPU 1 TB storage	M60 on AWS 16 vCPU (= 8 OCPU) 320 GB storage
Price (on-demand)	**$2.74 / hour**	**$3.95 / hour**

PLUS: Autonomous JSON Database is auto-scaling, not limited to fix shapes

Autonomous JSON Database

Faster than MongoDB

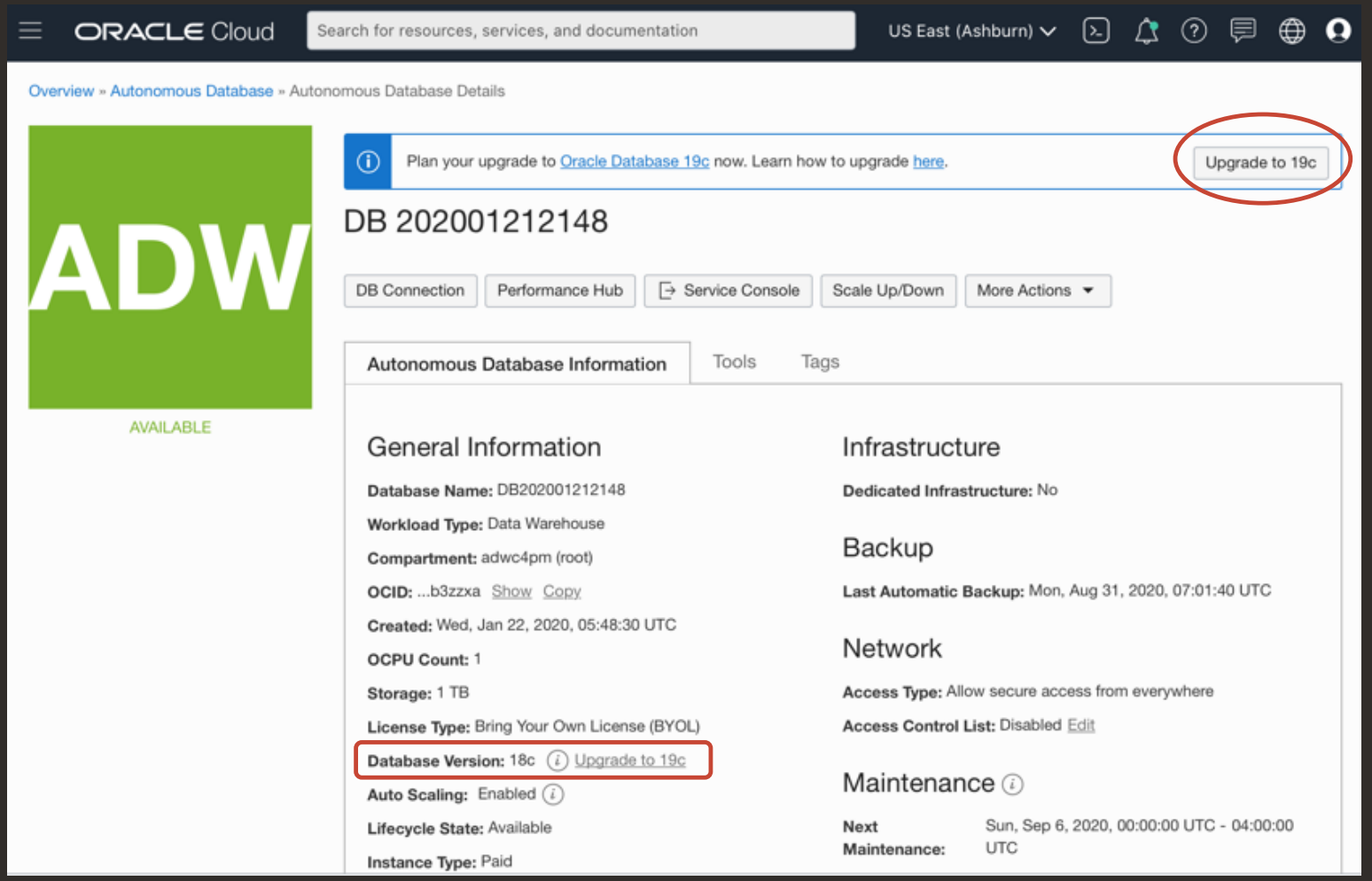




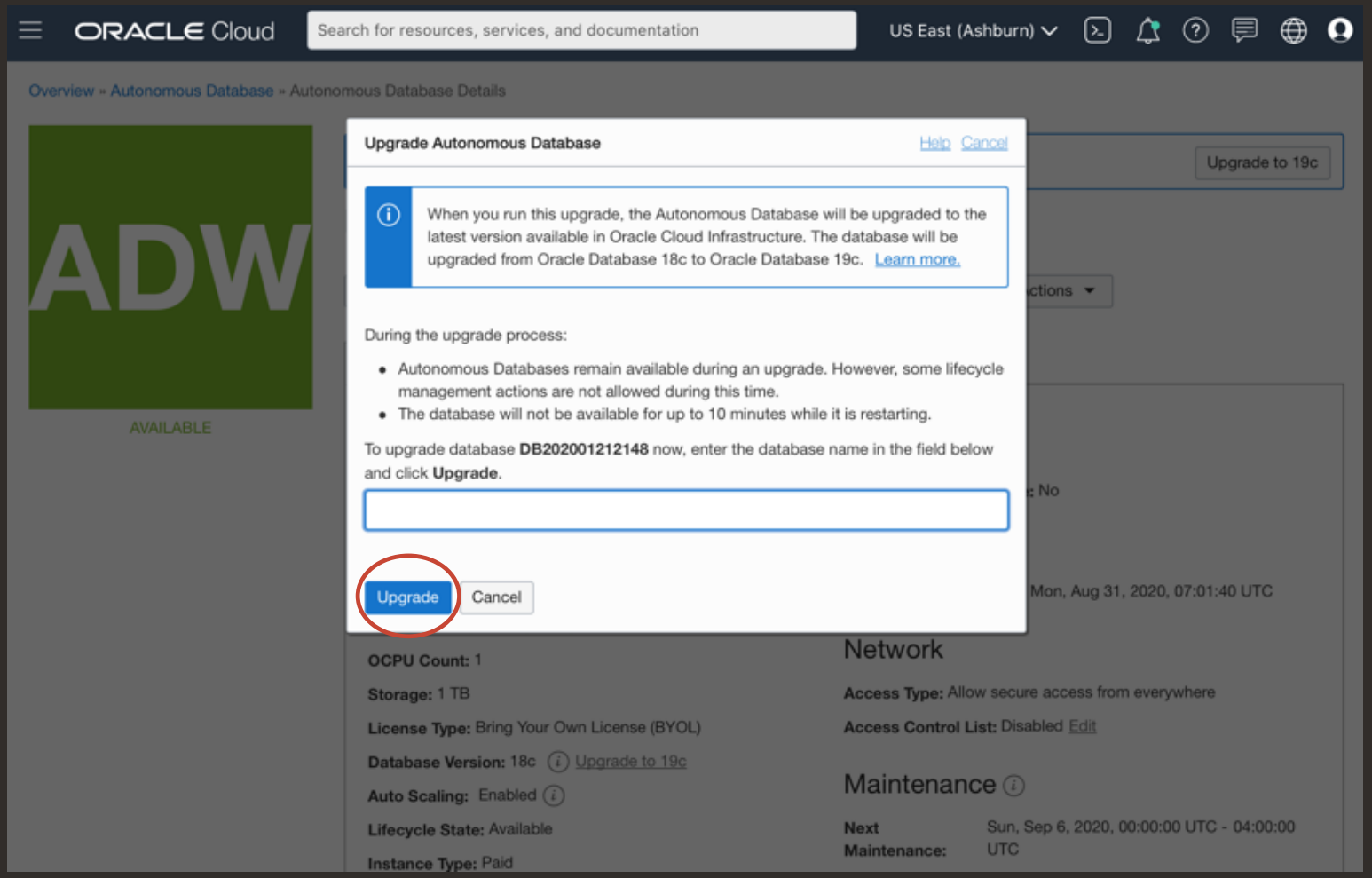
Autonomous JSON Database with 8 OCPUs compared to MongoDB Atlas on M60
Industry-standard Yahoo Cloud Serving Benchmark (YCSB)
Source of MongoDB results: https://www.mongodb.com/atlas-vs-amazon-documentdb/performance as of 8/12/2020

19c One-Click Upgrade on Oracle Autonomous Database

One Click Upgrade



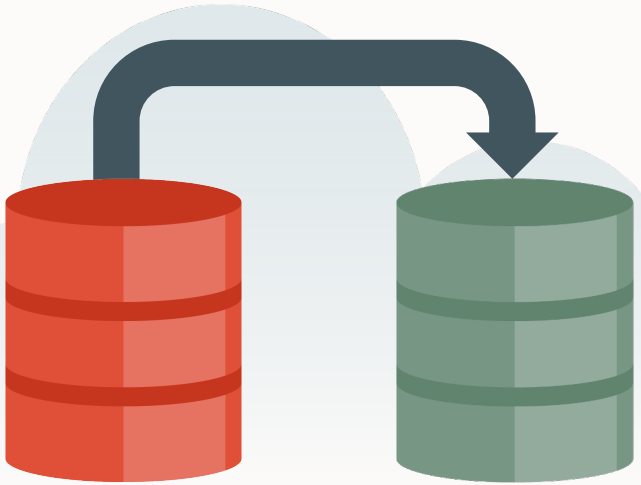
One Click Upgrade



How to use the most popular “lifecycle” feature of Oracle Autonomous Database to Upgrade

Cloning – The Most Popular Feature in ADB

Quickly provision a point-in-time copy



- Cloning creates a point-in-time copy of
  - An Autonomous Database
  - A backup of an Autonomous Database
- Two types of clone can be created:
  - A full database clone
  - A metadata clone (Schema but no data)
- Easy and fast as user only decides:
  - Compartment for the clone
  - Name of the clone
  - CPU and storage
  - New ADMIN password

Real-Customer Example of Cloning in Action

Using Cloning to Prepare for Database Upgrade

July 29th

Production DB 5TB

Test DB 25GB

Real-Customer Example of Cloning in Action

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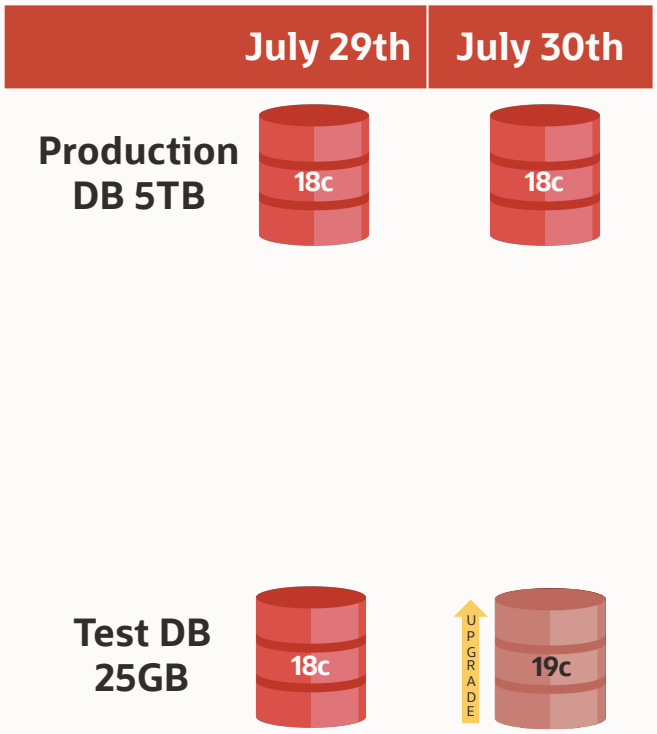

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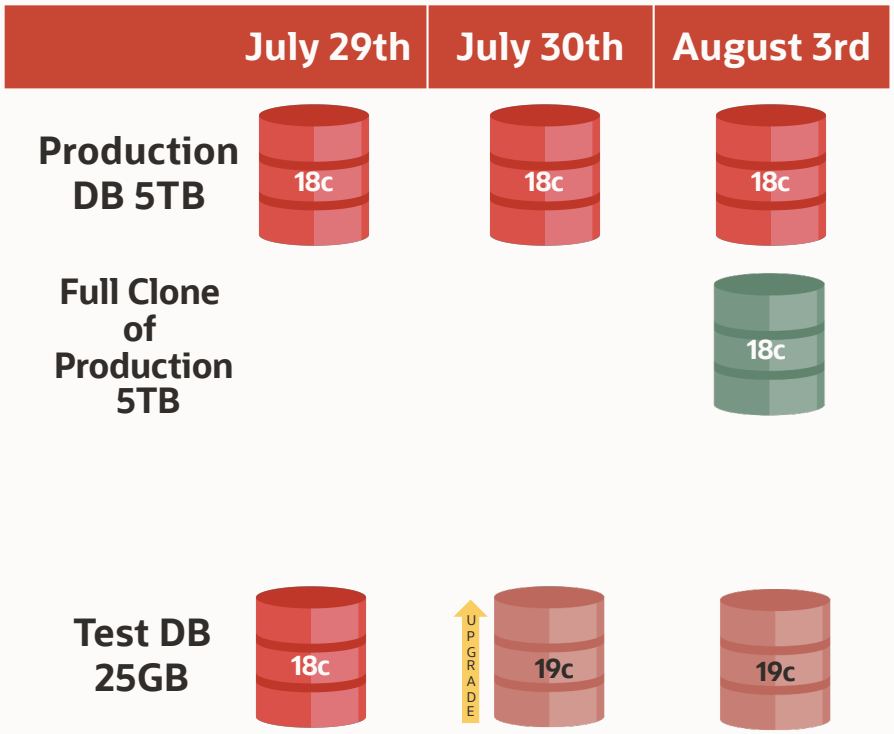

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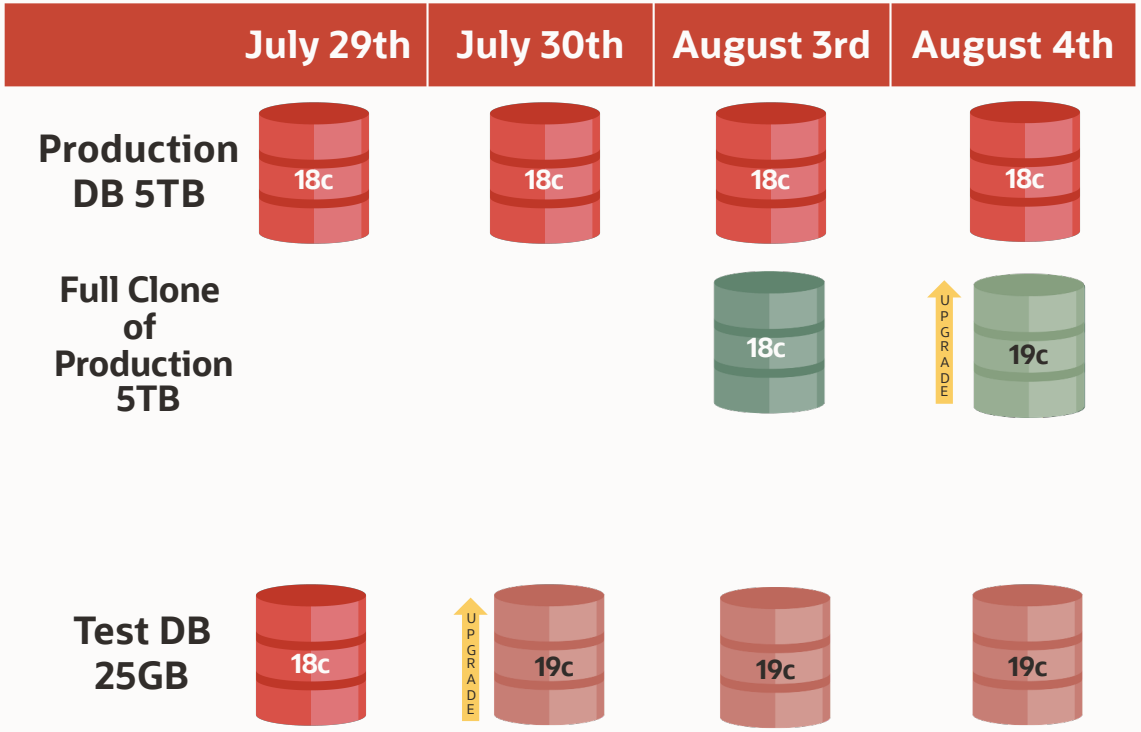

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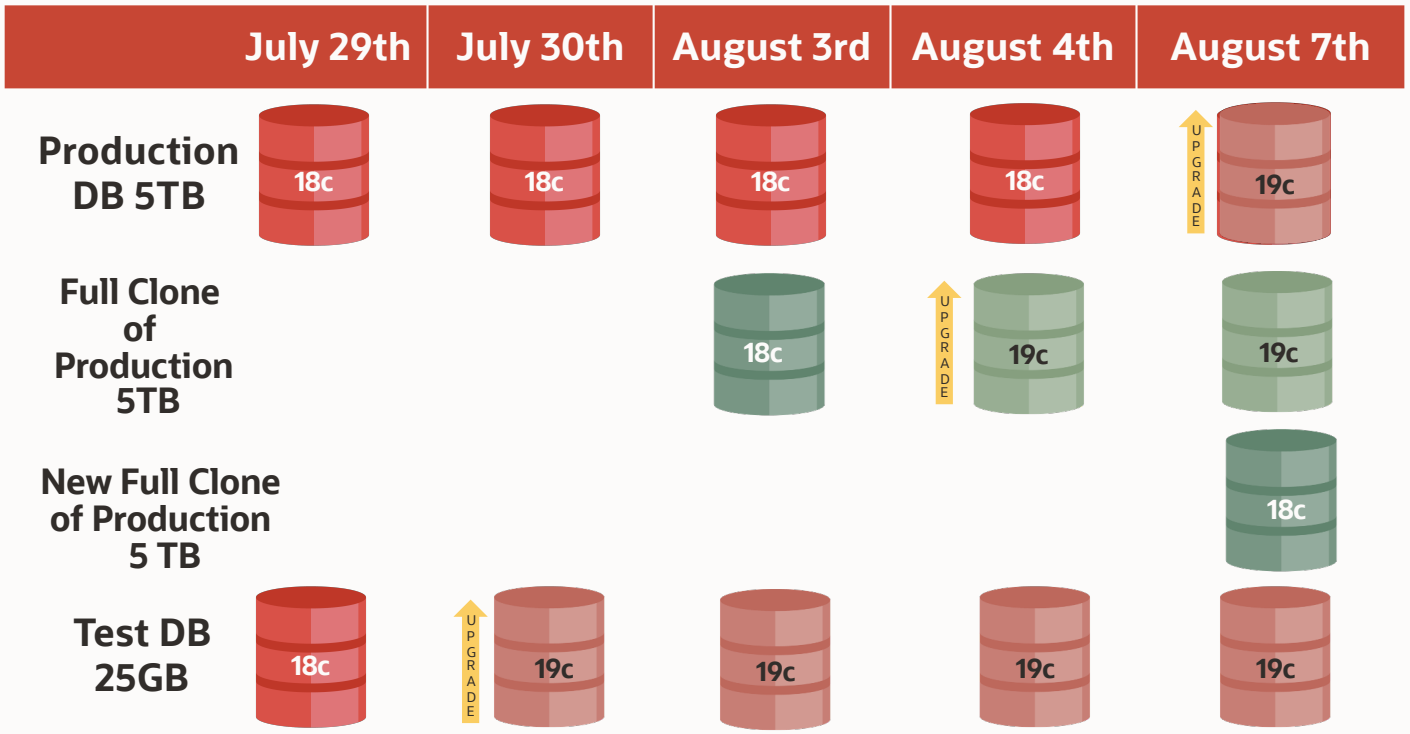

Real-Customer Example of Cloning in Action

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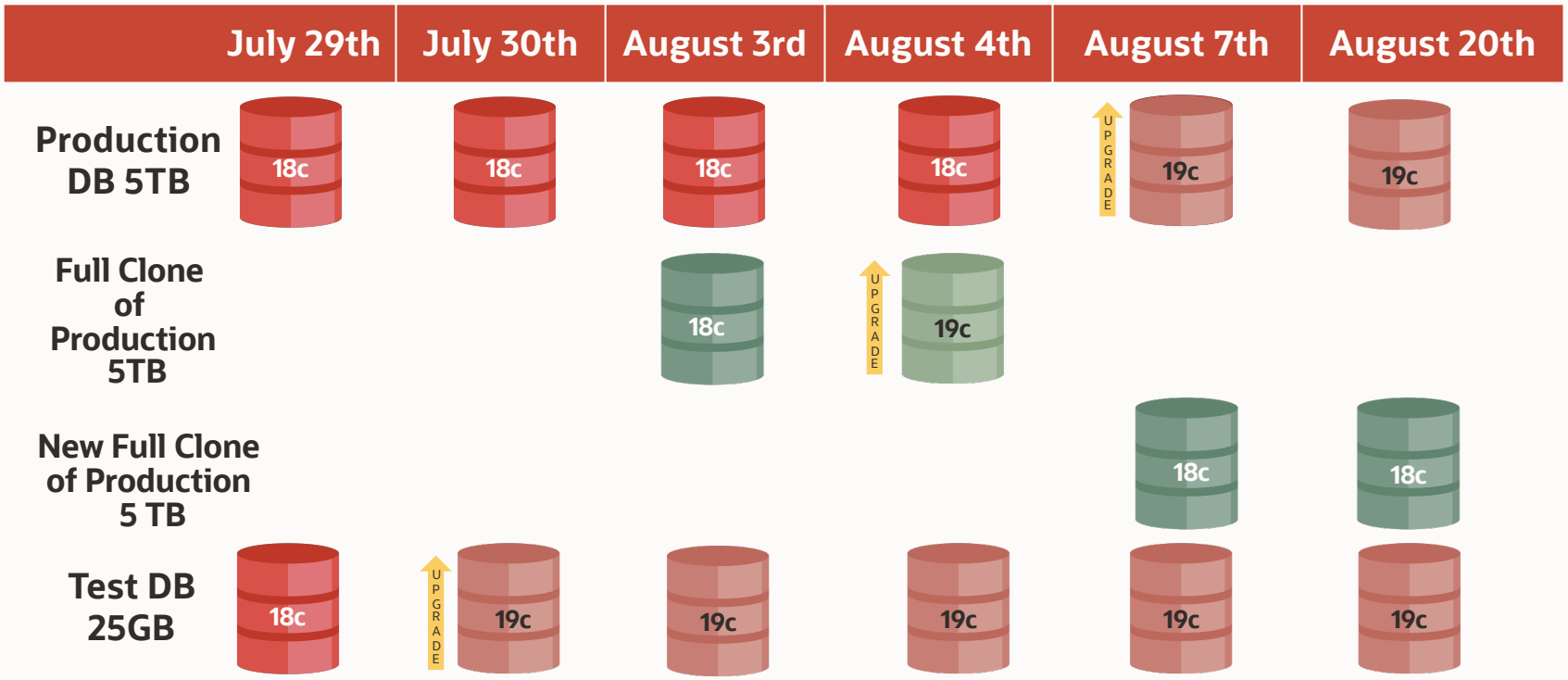
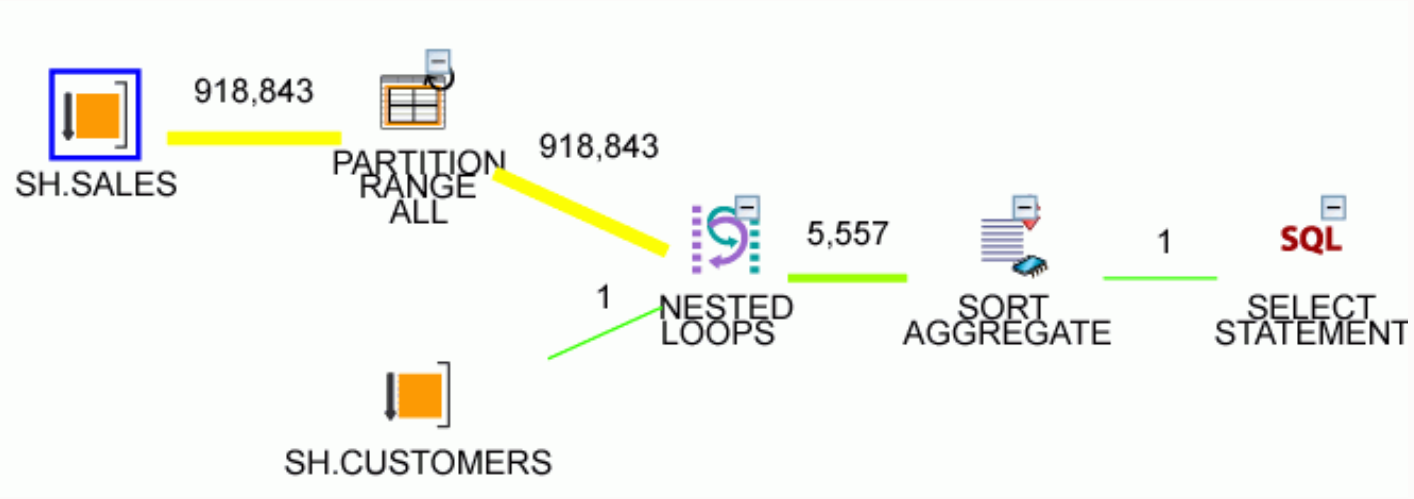


Historical Pain Point of Database Upgrades

Will there be a Performance Regression?

Historical Pain Point of Database Upgrades

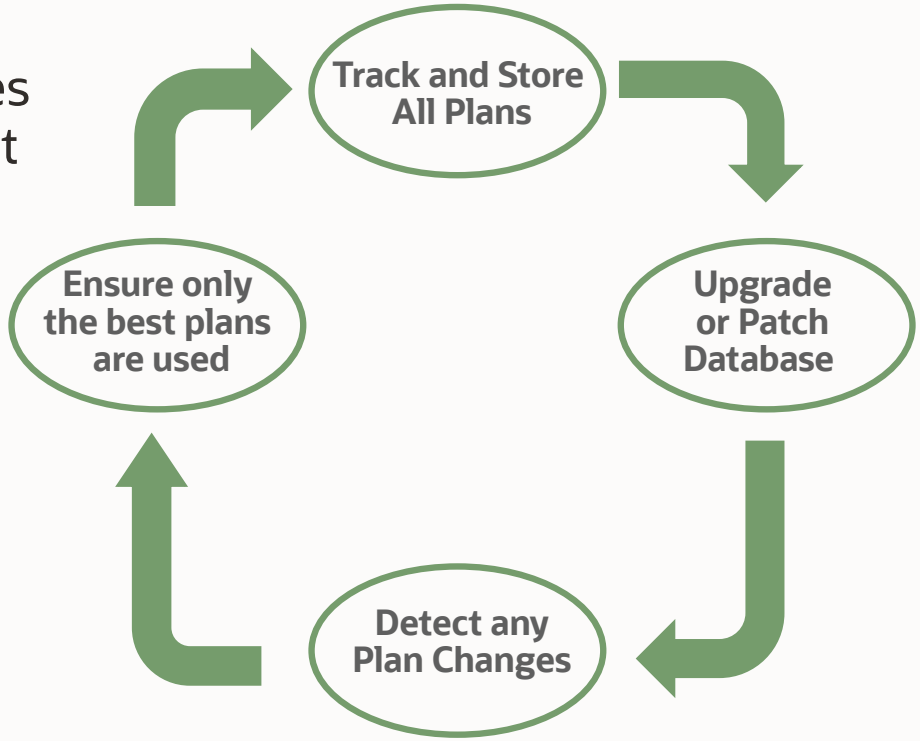
Leading Cause of Performance Regressions?



Execution Plan Changes

Autonomous Plan Stability Management for Upgrades

- Autonomous Database prevents performance regressions during upgrades and patching with SQL Plan Management
  - Fully automated
  - Always enabled
  - Zero customer actions required
- Execution plan and runtime statistics for every known SQL statement stored in Automatic SQL Tuning Set
  - Easily retrieved if plan regression is detected



Autonomous Plan Stability Management for Upgrades

A perfect combination of

Automation – Capture existing Good Plans

- Oracle Autonomous Database uses an Automatic SQL Tuning Set (STS) to capture existing 18c execution plans for all SQL statements
- Task runs periodically to ensure all critical SQL statements are captured
- You can check what statements have been captured by looking in `DBA_SQLSET_STATEMENTS` using the name `SYS_AUTO_STS`

Best Practices – Use SQL Plan Management

- Use ‘stored’ SQL execution plans to prevent Performance Regressions
  - Stored plans are used to prevent unexpected execution plan changes
  - When a new execution plan is found for a SQL statement:
    - A copy of a new plan is kept but not used
    - Use the previous stored plan to ensure consistent performance
    - Offline, test new plan and enable it only after it has been proven to improve performance
- Extremely useful for critical systems
  - Ensures plan stability through upgrades

You should use SQL Plan Management today in all of your on-prem systems

Autonomous Database Support for Oracle Apps

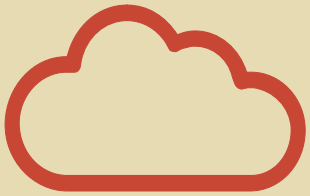
- PeopleSoft Enterprise PT PeopleTools
- Version 8.57 to 8.58
- Certified on Dedicated Infra and Cloud@Customer
- MOS Note 2699934.1

- JD Edwards Applications Release 9.2 and above
- JD Edwards Tools Release 9.2.4.3 and above
- Certified on Dedicated Infra and Cloud@Customer
- MOS Note 26872491

- Siebel System Software - Version 20.10 and later
- Certified on Dedicated Infra and Cloud@Customer
- Expected Oct. 2020

Available Now

Autonomous Database Deployment Options



Exadata Infrastructure in the Cloud

Gen 2 Exadata Cloud@Customer

Dedicated Region Cloud@Customer

Some Customers Cannot Move to Public Cloud

Regulations

- Regulations or policies require data to be local

Latency

- Applications require performance of local LAN

Integration

- Databases tightly-coupled with on-premises applications

Risk

- Concerns about multiple tenants sharing the cloud

Exadata Cloud@Customer Addresses These Concerns

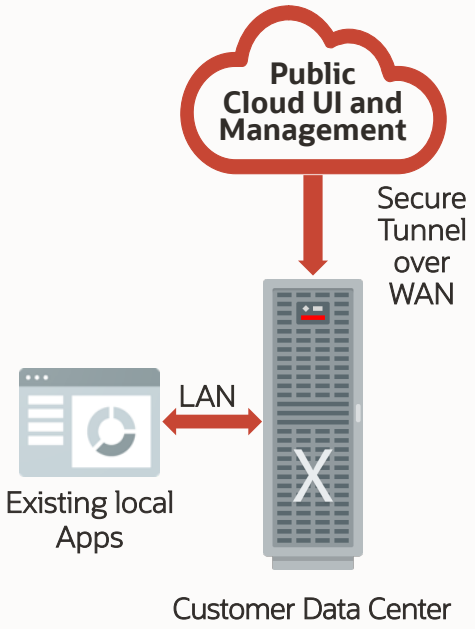
Autonomous Database on Exadata Cloud@Customer

Same features and benefits of Autonomous Database in Public Cloud

Now running on Gen 2 ExaC@C in your data center

Autonomous Database – Exadata Cloud@Customer

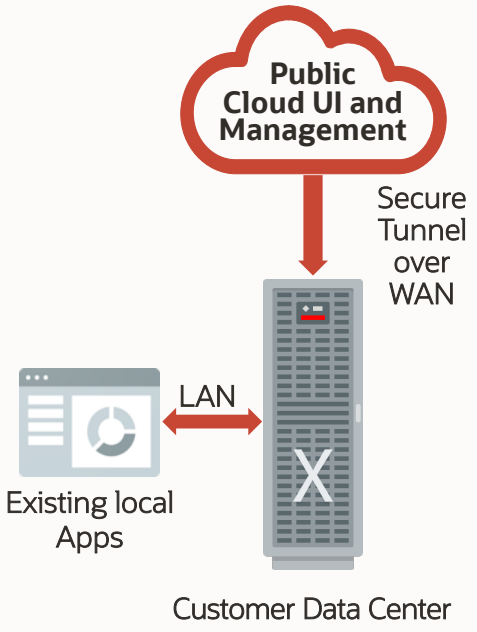
Primary Goals/Benefits



- Autonomous DB on Gen 2 Exadata Cloud@Customer
  - Looks exactly like Autonomous DB running in Public Cloud
  - Same simplicity, agility, performance, and elasticity

Autonomous Database – Exadata Cloud@Customer

Primary Goals/Benefits



- Autonomous DB on Gen 2 Exadata Cloud@Customer
  - Looks exactly like Autonomous DB running in Public Cloud
  - Same simplicity, agility, performance, and elasticity
- Simplest and fastest transition to Autonomous Cloud
  - Easily migrate existing on-prem databases
  - Existing Apps in data center simply re-connect and run
  - No application changes needed
  - Data never leaves your data center

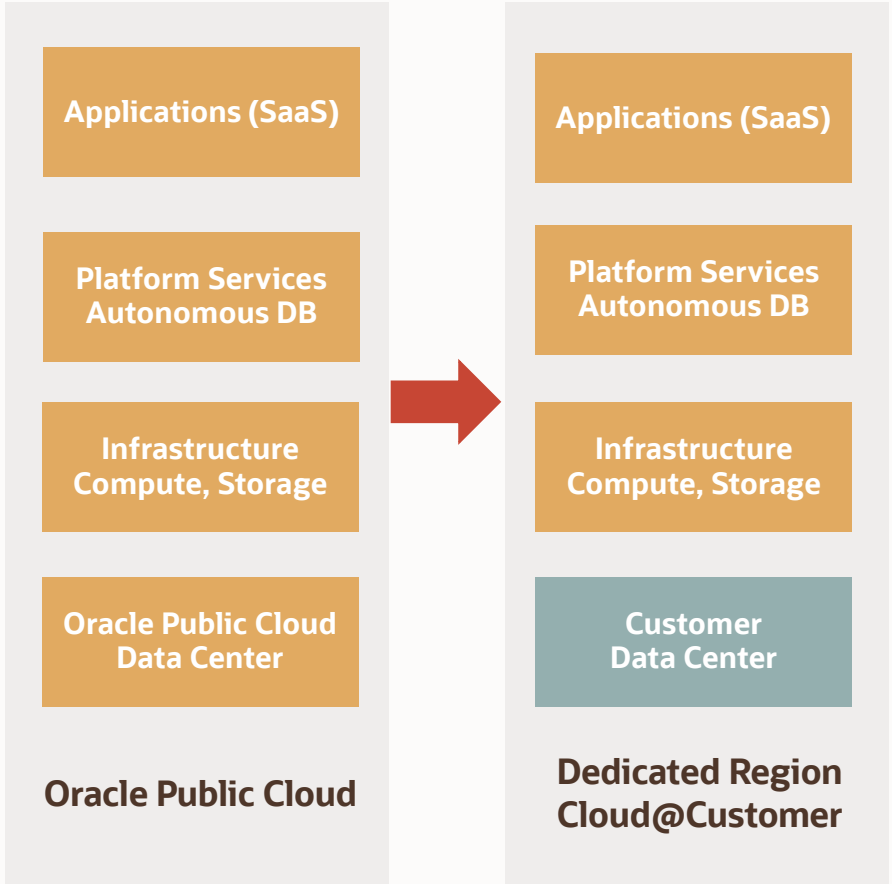
Autonomous Database on Dedicated Regions Cloud@Customer

Same features and benefits of Autonomous Database in Public Cloud

Now running on your own Dedicated Region

Dedicated Region Cloud@Customer

Copy & Paste Oracle Gen2 Public Cloud into Your Data Center



All Public Cloud Services in Your Data Center

- Fusion Apps, Autonomous DB, Compute, etc.
- Oracle managed maintenance and operations
- Unified management console with public cloud
- SLA guarantees match the public cloud
- **Only pay for what you use**
- **Same price as public cloud**
- Pay with Universal Credits

Oracle Autonomous Database
The Same Capabilities Everywhere You Need Them

Questions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